United States Department of the Interior
U.S. Fish and Wildlife Service
2321 West Royal Palm Road, Suite 103
Phoenix, Arizona 85021-4951
Telephone: (602) 242-0210 FAX: (602) 242-2513

In Reply Refer To:
AESO/SE
2-21-02-F-179 June 13, 2002

Mr. Jim Golden, Forest Supervisor
Coconino National Forest
Supervisor's Office
2323 East Greenlaw Lane
Flagstaff, Arizona 86004-1810

Dear Mr. Golden:

This letter constitutes the U.S. Fish and Wildlife Service's (Service) biological opinion based on our review of the proposed Knoll Dam Maintenance Project, Coconino National Forest, Coconino County, Arizona. This biological opinion analyzes the effects of the dam maintenance project on the threatened Mexican spotted owl (*Strix occidentalis lucida*) (MSO), in accordance with section 7 of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq*.). Critical habitat for this species has been designated; however, this action does not affect any areas of critical habitat and the effects of the action on critical habitat are not addressed further in this biological opinion. We received your Biological Assessment (BA) on February 17, 2002, and your request for formal consultation on May 22, 2002.

The Coconino National Forest also requested concurrence from the Service that the proposed project may affect, but will not likely adversely affect, the threatened Little Colorado spinedace (*Lepidomeda vittata*) and its critical habitat. We concur with your determination. The basis for our concurrence is found in Appendix A. In addition, you requested formal conferencing for the proposed threatened Chiricahua leopard frog (*Rana chiricahuensis*). After reviewing the BA, we believe that effects to the proposed threatened Chiricahua leopard frog from the proposed project may affect, but are not likely to adversely affect the species. We have included the basis for this concurrence in Appendix A.

No further section 7 consultation is required for the Little Colorado spinedace and its critical habitat at this time. Should the proposed action change, or should new information become available that indicates the action may affect the Little Colorado spinedace or its critical habitat in a manner or extent not considered in our review, the Forest Service may want to reconsider whether reinitiation of consultation is appropriate. If the Chiricahua leopard is listed under the Act prior to completion of the proposed action, the Forest Service should consider requesting that we affirm that this concurrence remains valid.

The biological opinion is based on the information provided in the BA; telephone and electronic mail transmissions with your staff; and other sources of information. A complete administrative record of this consultation is on file at this office.

Consultation History

Details of the consultation history are summarized in Table 1.

Table 1. Summary of Consultation History

Date	*Event*
February 27, 2002	The Fish and Wildlife Service received the Forest Service's initial request for consultation on the Knoll Dam Maintenance Project.
March 19 - April 12, 2002	Discussions between Fish and Wildlife Service and Forest Service staff regarding effects determinations for Chiricahua leopard frog and Mexican spotted owl; clarifications on expected duration of proposed action.
May 22, 2002	Fish and Wildlife Service received letter requesting formal consultation for the Mexican spotted owl.

BIOLOGICAL OPINION

DESCRIPTION OF THE PROPOSED ACTION

Knoll Lake and Knoll Lake Dam are located on the Coconino National Forest in Township 12 North, Range 12.5 East, Section 16. The lake was developed in 1962 through the construction of an earthen dam in East Leonard Canyon. East Leonard Canyon flows into Leonard Canyon, which flows into East Clear Creek. Operation and maintenance of the Knoll Lake Dam is the responsibility of the Arizona Game and Fish Department (AGFD). A June 27, 2001, inspection of the dam by the Arizona Department of Water Resources, Dam Safety Division identified several maintenance items needing corrective actions. As a result, the AGFD proposes to conduct maintenance work on the Knoll Lake Dam and the surrounding area this summer to insure safe operation of the dam.

Dam maintenance activities are scheduled to begin in June 2002, and are expected to take approximately two months to complete. The following is a list of the maintenance work to be conducted:

- *Draining and dredging*: Vegetation lines the outlet ditch that should carry water away from the outlet works. Over time, grasses and sedges have trapped sediment resulting in a raised ditch bottom. This causes water to backup and stand in the outlet works, which makes it nearly impossible to gauge seepage from the dam and its outlet works. Draining the water away from the outlet works will require clearing the vegetation from the outlet ditch and stream channel to a point where the water will flow away from the outlet drain box. Sediment accumulations of two to three feet in the ditch will be dredged. The outlet ditch measures 200 feet from the outlet works drain box apron to the ditch confluence with the dam's spillway channel. An estimated 310 feet of the stream channel below the spillway/ditch confluence will also be dredged. Sediments dredged from the ditch and stream channel will be deposited and spread on an elevated bench adjacent to the ditch. An excavator will be used to perform the dredging. A four-foot by four-foot weir box will be installed to monitor seepage flows that pass through the dam and outlet works.

- *Clear spillway*: The spillway contains an accumulation of logs, small boulders, and chunks of eroded spillway walls. This debris reduces the capacity of the spillway to pass floodwaters. An excavator and/or backhoe will be used to haul the material from the spillway. The concrete and boulders removed from the spillway will be placed along the lakeside face of the dam to help armor it. Any fine material (silt, sand gravels) removed from the spillway will be deposited on flat areas on or above the top of the dam. Woody debris will be removed and stockpiled off site.

- *Replace spillway retaining walls*: This work would require the use of an excavator to remove the deteriorated concrete spillway walls, and the use of concrete trucks to pour the new walls.

- *Concrete structure repair*: The concrete walls of the outlet works (outlet boxes and valve house) show signs of deterioration. These deteriorated spots need to be cut out, prepared, and patched. This work will require cutting the concrete with a gas-powered cutoff saw, removing the old concrete with a jackhammer, preparing the area with an air compressor and sand blaster, and then patching with new concrete.

- *Slope erosion repair*: Several locations on both the upstream and downstream faces of the dam are experiencing erosion. These erosion areas need to be prepped, backfilled, compacted, seeded, and possibly armored with burlap or some other material to ensure that the erosion patch remains in place. A couple of these erosion areas would require the use of a grader to improve drainage and abate future erosion.

- *Monument placement*: Monuments will be placed on top of the dam to be used as indicators of any possible shifting of the dam. This will require placing a monument every 50 feet along the top of the dam. The monuments will be set in concrete at a depth of five feet. Placement of the monuments will require the use of a backhoe, jackhammer, and cement mixer.

STATUS OF THE SPECIES

The Mexican spotted owl was listed as a threatened species in 1993 (USDI 1993). The primary threats to the species were cited as even-aged timber harvest and the threat of catastrophic wildfire, although grazing, recreation, and other land uses were also mentioned as possible factors influencing the MSO population. The Service appointed the Mexican Spotted Owl Recovery Team in 1993, which produced the Recovery Plan for the Mexican Spotted Owl (Recovery Plan) in 1995 (USDI 1995).

A detailed account of the taxonomy, biology, and reproductive characteristics of the MSO is found in the Final Rule listing the MSO as a threatened species (USDI 1993) and in the Recovery Plan (USDI 1995). The information provided in those documents is included herein by reference. Although the MSO's entire range covers a broad area of the southwestern United States and Mexico, the MSO does not occur uniformly throughout its range. Instead, it occurs in disjunct localities that correspond to isolated forested mountain systems, canyons, and in some cases steep, rocky canyon lands. Surveys have revealed that the species has an affinity for older, well-structured forest, and the species is known to inhabit a physically diverse landscape in the southwestern United States and Mexico.

A reliable estimate of the numbers of owls throughout its entire range is not currently available (USDI 1995) and the quality and quantity of information regarding numbers of MSO vary by source. USDI (1991) reported a total of 2,160 owls throughout the United States. Fletcher (1990) calculated that 2,074 owls existed in Arizona and New Mexico. However, Ganey *et al.* (2000) estimates approximately 2,950 ± 1,067 (SE) MSOs in the Upper Gila Mountains RU alone.

The primary administrator of lands supporting the MSO in the United States is the Forest Service. Most owls have been found within Forest Service Region 3 (including 11 National Forests in Arizona and New Mexico). Forest Service Regions 2 and 4 (including 2 National Forests in Colorado and 3 in Utah) support fewer owls. According to the Recovery Plan, 91% of MSO known to exist in the United States between 1990 and 1993 occurred on lands administered by the Forest Service.

The U.S. range of the MSO has been divided into six recovery units (RU), as discussed in the Recovery Plan. The Recovery Plan reports an estimate of owl sites for 1990-1993. At that time, the greatest concentration of known owl sites in the United States occurred in the Upper Gila

Mountains RU (55.9%), in which this project is located. Similarly, the Forest Service reported a total of approximately 935 protected activity centers (PACs) established on National Forest lands in the Southwestern Region , with 542 PACs (58%) in the Upper Gila Mountain RU (USDA Forest Service, Southwestern Region, February 28, 2001).

The Upper Gila Mountains RU is a relatively narrow band bounded on the north by the Colorado Plateau RU and to the south by the Basin and Range-West RU. The southern boundary of this RU includes the drainages below the Mogollon Rim in central and eastern Arizona. The eastern boundary extends to the Black, Mimbres, San Mateo, and Magdalena mountain ranges of New Mexico. The northern and western boundaries extend to the San Francisco Peaks and Bill Williams Mountain north and west of Flagstaff, Arizona. This is a topographically complex area consisting of steep foothills and high plateaus dissected by deep forested drainages. This RU can be considered a "transition zone" because it is an interface between two major biotic regions: the Colorado Plateau and Basin and Range Provinces (Wilson 1969). Most habitat within this RU is administered by the Kaibab, Coconino, Apache-Sitgreaves, Tonto, Cibola, and Gila national forests. The north half of the Fort Apache and northeast corner of the San Carlos Indian reservations are located in the center of this RU and also support MSOs.

The Upper Gila Mountains RU consists of pinyon/juniper woodland, ponderosa pine/mixed conifer forest, some spruce/fir forest, and deciduous riparian forest in mid- and lower-elevation canyon habitat. Climate is characterized by cold winters and over half the precipitation falls during the growing season. Much of the mature stand component on the gentle slopes surrounding the canyons had been partially or completely harvested prior to the species' listing as threatened in 1993, however, MSO nesting habitat remains in steeper areas. MSO are widely distributed and use a variety of habitats within this RU. Owls most commonly nest and roost in mixed-conifer forests dominated by Douglas fir and/or white fir, and canyons with varying degrees of forest cover (Ganey and Balda 1989, USDI 1995). Owls also nest and roost in ponderosa pine-Gambel oak forest, where they are typically found in stands containing well-developed understories of Gambel oak (USDI 1995).

In 1996, the Service issued a biological opinion on Forest Service Region 3's adoption of the Recovery Plan recommendations through an amendment of their Forest Plans. In this non-jeopardy biological opinion, we anticipated that approximately 151 PACs would be affected by activities that would result in incidental take of MSOs, with 92 of those PACs located in the Upper Gila Mountains RU. To date, consultation on individual actions under the amended Forest Plans have resulted in 97 PACs adversely affected, with 57 of those in the Upper Gila Mountains RU.

In addition to actions proposed by the Forest Service, Region 3, we have also reviewed the impacts of actions proposed by the Bureau of Indian Affairs, Department of Defense (including Air Force, Army, and Navy), Department of Energy, National Park Service, and Federal Highway Administration. These proposals have included timber sales, road construction, fire/ecosystem management projects (including prescribed natural and management ignited

fires), livestock grazing, recreation activities, utility corridors, military and sightseeing overflights, and other activities. Only one of these projects (release of site-specific owl location information) has resulted in a biological opinion that the proposed action would likely jeopardize the continued existence of the MSO.

ENVIRONMENTAL BASELINE

The environmental baseline includes past and present impacts of all Federal, State, or private actions in the action area, the anticipated impacts of all proposed Federal actions in the action area that have undergone formal or early section 7 consultation, and the impact of State and private actions which are contemporaneous with the consultation process. The environmental baseline defines the current status of the species and its habitat in the action area to provide a platform to assess the effects of the action now under consultation.

A. Status of the species within the action area

The project will take place on the Knoll Lake Dam and within the dam spillway, which lie along the western edge of the Knoll Lake PAC (#010401). The PAC is administered by the Apache-Sitgreaves National Forest and was delineated around a 1989 sighting of a female MSO approximately 0.3 mile from the eastern edge of Knoll Lake. The PAC was monitored from 1991 through 1994, and again in 1997, with no owls detected.

B. Factors affecting species' environment within the action area

Actions within the project area that affect MSO include both domestic and wild ungulate grazing, recreation, fuel reduction treatments, and other associated actions. These activities have the potential to reduce the quality of MSO nesting, roosting, and foraging habitat, and may cause disturbance during the breeding season. Livestock grazing has occurred within this area in the past and elk populations are thought to have a large effect on the availability of grass cover for prey species. Recreation impacts are increasing on the District and at Knoll Lake, especially in meadow and riparian areas. The Mogollon Rim Ranger District owl survey crews report that owls in heavily used recreation areas are much more erratic in their movement patterns and behavior. Fuels reduction treatments, though critical to reducing the risk of catastrophic wildfire, can have short-term adverse affects to MSO through habitat modification and disturbance.

EFFECTS OF THE ACTION

Effects of the action refer to the direct and indirect effects of an action on the species or critical habitat, together with the effects of other activities that are interrelated and interdependent with that action, that will be added to the environmental baseline. Interrelated actions are those that are part of a larger action and depend on the larger action for their justification. Interdependent actions are those that have no independent utility apart from the action under consideration. Indirect effects are those that are caused by the proposed action and are later in time, but are still

reasonably certain to occur.

None of the proposed maintenance associated with the project will physically alter habitat conditions for the owl (i.e., tree removal). However, there is the potential for disturbance to breeding birds within the PAC resulting from the use of heavy machinery during the breeding season, as almost 50% of the PAC is within 0.5 mile of the project area.

According to the BA, the closest potential nesting habitat within the Knoll Lake PAC to the project site is >0.25 mile from where the machinery will be located. The area close to the dam (within 0.25 mile) is open pine habitat and lake, and is not suitable nesting habitat. However, this area is within the PAC boundary. A small portion of the Ohaco Lookout PAC (#010402) is located within 0.5 mile of the project area.

The response of wildlife to noise disturbance is complex, being neither uniform nor consistent. Delaney *et al.* (1997) reviewed literature on the response of owls and other birds to noise and concluded the following: 1) raptors are more susceptible to disturbance-caused nest abandonment early in the nesting season; 2) birds generally flush in response to disturbance when distances to the source are less than approximately 200 feet and when sound levels are in excess of 95 dBA; and 3) the tendency to flush from a nest declines with experience or habituation to the noise, although the startle response cannot be completely eliminated by habituation.

Our guidance is to limit potentially disturbing activities to areas ≥0.25 mile from MSO nest sites during the breeding season (March 1 through August 31). This corresponds well with the Delaney *et al.*'s (1999) 0.25 mile threshold for alert responses to helicopter flights. Maintenance activities associated with this project will occur within 0.25 mile of potential nesting habitat during the MSO breeding season. Delaney *et al.* (1999) found that ground-based disturbances elicited a greater flush response than aerial disturbances.

Owls have more sensitive hearing than other birds (Bowles 1995). The Knoll Lake PAC is located immediately adjacent to the dam where maintenance and associated activity will take place during the breeding season. If a noisy sound source arouses an animal, it has the potential to affect its metabolic rate by making it more active. Increased activity can, in turn, deplete energy reserves (Bowles 1995). Noisy human activity can cause raptors to expand their home ranges, but often birds return to normal use patterns when the humans are not present (Bowles 1995). Such expansions in home ranges could affect the fitness of the birds, and thus their ability to successfully reproduce and raise young. Species that are sensitive to the presence of people may be displaced permanently, which may be more detrimental to wildlife than recreation-induced habitat changes (Hammitt and Cole 1987, Gutzwiller 1995, Knight and Cole 1995). If animals are denied access to areas that are essential for reproduction and survival, then that population will decline. Likewise, if animals are disturbed while performing behaviors such as foraging or breeding, that population will also likely decline (Knight and Cole 1995).

Birds may respond to disturbance during the breeding season by abandoning their nests or young;

by altering their behavior such that they are less attentive to the young, which increases the risk of young being preyed upon; by disrupting feeding patterns; or by exposing young to adverse environmental stress (Knight and Cole 1995). There is also evidence that disturbance during years of diminished prey base can result in lost foraging time which, in turn, may cause some raptors to leave an area or not to breed at all (Knight and Cole 1995). Topographic screening between the area of disturbance and the birds' location creates a noise buffer, and may assist in the reduction of noise disturbance (Knight and Cole 1995). However, the physical structure of canyons can also tend to magnify disturbances and limit escape/avoidance routes for owls (USDI 1995). The physical characteristics of the Knoll Lake PAC do not provide topographic screening. The PAC consists of the west-facing slope of Leonard Canyon, directly adjacent to Knoll Lake and the dam.

The use of heavy equipment during the day may disrupt normal MSO behavior and activity patterns, especially if adults are feeding fledged young. If MSO associated with the Knoll Lake or Ohaco Lookout PAC nested within 0.5 mile of the dam, the maintenance work beginning in June may impact adults and young through noise disturbance. Nestling MSO generally fledge in early to mid-June (Ganey 1988). This is approximately the time maintenance work at the dam will begin adjacent to the PAC. Fledglings usually leave the nest before they can fly and within a week of leaving the nest, most owlets can make short, clumsy flights between trees (USDI 1995), thus it is unlikely that fledglings could depart the nest stand immediately if disturbed by nearby construction activity. Fledglings depend on their parents for food during the early portion of the fledgling period and feeding by the adults may continue into August and September, thus if adults are disrupted from their normal behavior and unable to adequately feed their young, the fledglings may be negatively impacted.

If MSO at either the Knoll Lake or Ohaco Lookout PACs nested this year, they may be feeding nestlings during early June, and fledglings during the later part of the season. The project may last as long as two months, and though there most likely will not be constant noise disturbance, the potential to impact owl behavior and habitat use during this time is probable. The Forest Service was unable to determine the nesting status of these PACs this year, so we must conservatively assume that at least one PAC supports nesting owls and that they may well be within 0.5 mile of the Knoll Lake dam. The Service Utah Field Office Guidelines for Raptor Protection from Human and Land Use Disturbances (2002) recommends a spatial buffer of 0.5 mile around MSOs nests during the breeding season for maintenance and construction activities during the post-brooding nestling period. The full buffer is recommended because there is the risk that these activities will adversely impact the MSO's ability to successfully rear young.

CUMULATIVE EFFECTS

Cumulative effects include the effects of future State, tribal, local or private actions that are reasonably certain to occur in the action area to be considered in this biological opinion. Future Federal actions are subject to the consultation requirements established under section 7, and therefore, are not considered cumulative in the proposed action. Future actions within the action

area that are reasonably certain to occur include urban growth and development, recreation, road construction, fuels-reduction treatments, livestock grazing, and other associated actions. These actions have the potential to reduce the quality of MSO nesting, roosting, and foraging habitat, cause disturbance to breeding MSO, and would contribute as cumulative effects to the proposed action.

CONCLUSION

The conclusions of this biological opinion are based on full implementation of the project as described in the Description of the Proposed Action section of this document, including any Conservation Measures that were incorporated into the project design. After reviewing the current status of the MSO, the environmental baseline for the action area, the effects of the proposed Knoll Dam Maintenance Project, and the cumulative effects, it is our biological opinion that the Knoll Dam Maintenance Project, as proposed, is not likely to jeopardize the continued existence of the MSO. We make this finding for the following reasons:

1. The proposed activity is a single disturbance (a non-habitat altering action that disrupts or is likely to disrupt owl behavior within/over a single breeding season) that should not impair the future reproductive ability of the Knoll Lake or Ohaco Lookout PACs.

2. The incidental take anticipated in this opinion falls within the incidental take level anticipated in the non-jeopardy 1996 biological opinion for the MSO and the Forest Service Region 3 Forest Plan Amendments.

INCIDENTAL TAKE STATEMENT

Section 9 of the Act and Federal regulations pursuant to section 4(d) of the Act prohibit the take of endangered and threatened species, respectively, without special exemption. "Take" is defined as to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or to attempt to engage in any such conduct. "Harm" is defined under regulations at 50 CFR 17.3 to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing essential behavioral patterns, including breeding, feeding, or sheltering. "Harass" is defined at 50 CFR 17.3 as intentional or negligent actions that create the likelihood of injury to listed species to such an extent as to significantly disrupt normal behavior patterns which include, but are not limited to, breeding, feeding or sheltering. "Incidental take" is defined as take that is incidental to, and not the purpose of, the carrying out of an otherwise lawful activity. Under the terms of section 7(b)(4) and section 7(o)(2), taking that is incidental to, and not intended as part of the agency action, is not considered to be prohibited taking under the Act provided that such taking is in compliance with the terms and conditions of this Incidental Take Statement.

The measures described below are non-discretionary, and must be undertaken by the Forest

Service so that they become binding conditions of any grant or permit issued to the applicant, as appropriate, for the exemption in section 7(o)(2) to apply. The Forest Service has a continuing duty to regulate the activity covered by this incidental take statement. If the Forest Service (1) fails to assume and implement the terms and conditions or (2) fails to require the applicant to adhere to the terms and conditions of the incidental take statement through enforceable terms that are added to the permit or grant document, the protective coverage of section 7(o)(2) may lapse. In order to monitor the impact of incidental take, the Forest Service must report the progress of the action and its impact on the species to us as specified in the incidental take statement. [50 CFR §402.14(i)(3)].

AMOUNT OR EXTENT OF TAKE

This biological opinion anticipates that harassment of one pair of MSO and/or associated young associated with the Knoll Lake PAC is reasonably certain to occur as a result of two months of noise from heavy equipment during the 2002 breeding season.

The Service will not refer the incidental take of any migratory bird or bald eagle for prosecution under the Migratory Bird Treaty Act of 1918, as amended (16 U.S.C. §§ 703-712), or the Bald and Golden Eagle Protection Act of 1940, as amended (16 U.S.C. §§ 668-668d), if such take is in compliance with the terms and conditions specified herein.

EFFECT OF THE TAKE

Using available information as presented in this document and contained in the administrative record, we have identified conditions of probable take for the MSO associated with the Knoll Lake PAC. Based on the best available information furnished by the Forest Service, take is anticipated for the MSO as a result of the dam maintenance work taking place adjacent to and within the Knoll Lake PAC during the breeding season. We find that this taking is reasonably certain to occur because the habitat in the Knoll Lake PAC appears capable of supporting breeding MSOs, and we are aware that other MSO pairs are breeding this year in the Upper Gila RU. As a result of this action, breeding MSOs may raise fewer young, raise less fit young, or desert the area because of disturbance.

In this biological opinion, we determine that this level of anticipated take is not likely to result in jeopardy to the MSO, since the taking is expected to occur over only one breeding season and the proposed action will not reduce the function of this PAC for subsequent breeding attempts.

REASONABLE AND PRUDENT MEASURES

The following reasonable and prudent measure is necessary and appropriate to minimize take of Mexican spotted owl:

1. The Forest Service shall minimize adverse effects of the dam maintenance and all

associated activities.

TERMS AND CONDITIONS

In order to be exempt from the prohibitions of section 9 of the Act, the Forest Service must comply with the following terms and conditions, which implement the reasonable and prudent measure described above and outline required reporting/monitoring requirements. These terms and conditions are non-discretionary.

The following terms and conditions implement reasonable and prudent measure 1.

1.1 Work conducted in association with the dam maintenance (draining works, clearing spillway, replacing retaining walls, concrete structure repair, erosion control, and monument placement) shall occur only between the hours of 0700 and 1700 in areas adjacent to or within 0.25 mile of the Knoll Lake PAC.

Review Requirement: The reasonable and prudent measure, with its implementing terms and conditions, is designed to minimize incidental take that might otherwise result from the proposed action. If, during the course of the action, the level of incidental take is exceeded, such incidental take would represent new information requiring review of the reasonable and prudent measure provided. The Forest Service must immediately provide an explanation of the causes of the taking and review with the Arizona Ecological Services Office the need for possible modification of the reasonable and prudent measure.

Disposition of Dead or Injured Listed Species

Upon locating a dead, injured, or sick listed species initial notification must be made to our Law Enforcement Office, Federal Building, Room 8, 26 North McDonald, Mesa, Arizona (telephone: 480/835-8289) within three working days of its finding. Written notification must be made within five calendar days and include the date, time, and location of the animal, a photograph if possible, and any other pertinent information. The notification shall be sent to the Law Enforcement Office with a copy to this office. Care must be taken in handling sick or injured animals to ensure effective treatment and care, and in handling dead specimens to preserve the biological material in the best possible state. If possible, the remains of intact owl(s) shall be provided to this office. If the remains of the owl(s) are not intact or are not collected, the information noted above shall be obtained and the carcass left in place. Injured animals should be transported to a qualified veterinarian by an authorized biologist. Should the treated owl(s) survive, please contact our Law Enforcement office regarding the final disposition of the animal.

CONSERVATION RECOMMENDATIONS

Section 7(a)(1) of the Act directs Federal agencies to utilize their authorities to further the purposes of the Act by carrying out conservation programs for the benefit of endangered and threatened species. Conservation recommendations are discretionary agency activities to

minimize or avoid adverse effects of a proposed action on listed species or critical habitat, to help implement recovery plans, or to develop information.

1. We recommend that the Forest Service monitor the affected PACs and ensure that all potential habitat is adequately surveyed.

REINITIATION NOTICE

This concludes formal consultation on the action outlined in the request. As provided in 50 CFR §402.16, reinitiation of formal consultation is required where discretionary Federal agency involvement or control over the action has been retained (or is authorized by law) and if: (1) the amount or extent of incidental take is exceeded; (2) new information reveals effects of the agency action that may affect listed species or critical habitat in a manner or to an extent not considered in this opinion; (3) the agency action is subsequently modified in a manner that causes an effect to the listed species or critical habitat not considered in this opinion; or (4) a new species is listed or critical habitat designated that may be affected by the action. In instances where the amount or extent of incidental take is exceeded, any operations causing such take must cease pending reinitiation.

We appreciate your efforts to identify and minimize effects to threatened and endangered species in development of the Knoll Dam Maintenance Project. If you have any questions regarding this consultation, please contact Shaula Hedwall (928) 226-1811 or Steve Spangle (928) 226-0250 of our Flagstaff Suboffice. Please refer to the consultation number, 2-21-02-F-179, in future correspondence concerning this project.

Sincerely,

/s/ David L. Harlow
Field Supervisor

cc: Regional Director, U.S. Fish and Wildlife Service, Albuquerque, NM (ARD-ES)
Field Supervisor, U.S. Fish and Wildlife Service, Albuquerque, NM
Forest Biologist, Coconino National Forest, Flagstaff, AZ (Attn: Cecelia Overby)
Forest Fishery Biologist, Coconino National Forest, Flagstaff, AZ (Attn: Mark Whitney)
Larry Sears, District Ranger, Mogollon Rim Ranger District, Happy Jack, AZ
Cathy Taylor, Wildlife Staff, Mogollon Rim Ranger District, Happy Jack, AZ
John Kennedy, Arizona Game and Fish Department, Phoenix, AZ

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APPENDIX A - CONCURRENCES

Little Colorado Spinedace and Little Colorado Spinedace Critical Habitat

Spinedace have been observed at six locations within the western portion of the East Clear Creek Watershed in recent years. Observations within East Clear Creek critical habitat in the 1990's include: 1) the Jones Crossing vicinity (1993, 1994, 1995); 2) near the mouth of Miller Canyon (1994); and 3) below Blue Ridge Reservoir (1995 through 1997). Spinedace have been located at three locations within the Leonard Canyon Watershed: 1) in Dines Tank (1969 through 1993, 1999, 2002); 2) in West Leonard Canyon (1994, 1999, 2000, 2001, 2002); and 3) in Leonard Canyon between its confluences with Buck Springs Canyon and West Leonard Canyon (1998). Of all the drainages surveyed in 1999, 2000, and 2001, West Leonard Canyon was the only drainage to contain spinedace. The spinedace pools at West Leonard Canyon lie within the same general vicinity as those found in 1994 (White and Montgomery 1995).

A survey on October 5, 2001, found surface water from the dam's outlet works to a point 1,210 feet downstream in East Leonard Canyon. Originating from seepage through the outlet works, the first 200 feet of water exists within a ditch leading down drainage. The seepage produces a very small flow of water into the ditch. This ditch forms a confluence with the dam's spillway channel. The spillway channel above the confluence was dry. Downstream of the confluence, the stream channel contains eight distinct habitat units: five runs separated by three very small riffles and one short dry stretch found at the downstream extent of the water channel. The runs averaged in size from 44 feet to 156 feet in length by a measured average width ranging from six to 14 feet. Maximum depths of the runs ranged from 11 to 29 inches. Riffle lengths ranged from 59 to 151 feet, with an average wetted width of no less than three feet, and maximum depths of two to four inches. Discharge was not measured, but if measured, would have been extremely low.

The October 5, 2001, fish survey downstream of the dam's outlet works did not collect any Little Colorado spinedace. Lack of presence during a survey does not necessarily equate to absence. However, the sampled habitats were relatively small, which permitted of survey and capture of fish. Missing spinedace during the survey would seem unlikely, given the relatively large number of fathead minnows and speckled dace captured, and the comparative size of those minnows to spinedace. Fathead minnows dominated the fish collected during the survey, and have been identified as an effective non-native competitor to the native spinedace. Given survey efficiency and the number of minnows in the survey collection, the absence of spinedace in the affected habitat is highly likely.

The dredging of the stream channel downstream of the ditch/spillway confluence would alter approximately 310 feet of stream channel. Given that spinedace are known to occupy the Leonard Canyon watershed, and that the affected portion of the stream course is occupied by two minnow species, this section of the channel is potentially suitable but currently unoccupied spinedace habitat.

The erosion control, spillway clearing, monument setting, and concrete structure repair activities will not occur within the stream channel. However, the dredging of the ditch and stream channel, the erosion control work, and the spillway wall replacement work will cause ground disturbance and have the potential to increase sedimentation to the stream channels in East Leonard and Leonard Canyon. The Forest Service contends that though project-generated sediment will be delivered into the stream course, any sediment that is not transported through the drainage system will likely settle out in pool and run habitats, and not within the gravelly, riffle habitats used for spawning. Sediments dredged from the ditch and stream channel will be deposited and spread on an elevated bench (case-off site) adjacent to the ditch and stream channel. Straw bales will be placed around the perimeter of the case-off site to trap and hold the dredged sediments from returning to the stream channel. Over time, vegetation growth will stabilize the case-off site.

We concur with the Forest Service's determination that the proposed action may affect, but will not likely adversely affect, the Little Colorado spinedace or its critical habitat. We base this determination on the following:

1. The aquatic habitat within the proposed project area most likely does not contain Little Colorado spinedace at this time. The nearest known occupied habitat is at the confluence of East and West Leonard Canyons, approximately 3.2 miles downstream of the dam.

2. The project will be completed during the driest part of the year. This should minimize the amount of aquatic habitat affected, thus reducing the chance that Little Colorado spinedace are present within the project area.

3. The downstream end of designated critical habitat in East Clear Creek is approximately 24 miles downstream of Knoll Lake Dam at the East Clear Creek/Leonard Canyon confluence. The proposed ground-disturbing, sediment-producing activities will be isolated within a small area below the dam. The proposed action contains measures to mitigate the introduction of sedimentation into the stream channel.

Chiricahua leopard frog

The range of the Chiricahua leopard frog in Arizona can be divided into two general areas: (1) the southeastern part of the state and (2) centered along the Mogollon Rim. Populations occurring in the Coconino National Forest occur within the northern portion of the species' range. Threats to the species occur throughout its range, but the populations above the Mogollon Rim appear to have relatively poor persistence (J. Rorabaugh, U.S. Fish and Wildlife Service, pers. comm. 2001). East Clear Creek and several of its major tributaries provide historical habitat that would be considered suitable (areas likely to be inhabitable by the Chiricahua leopard frog), with the exception of the presence of nonnative fish and crayfish. Though most stock tanks are devoid of riparian and aquatic vegetation, a few are vegetated and provide potential habitat. Historical locations within the East Clear Creek Watershed include Mack's Crossing in

1971 (T14N, R12.5E, Section 8), East Clear Creek at FS 96 in 1972 (T14N, R12E, Section 35), Jones Crossing in 1970 (T13N, R10E, Section 10), Buck Springs Canyon in 1984 (T12N, R12E), Blue Ridge Reservoir in 1972 (T13/14N, R11E), Buck Springs Tank in 1984 (T13N, R12E, Section 31), and Clints Well in 1970 (T14N, R10E, Section 31).

Surveys were conducted by the Arizona Game and Fish Department in 1992 in historical sites as well as Dines Tank in Leonard Canyon, Lower Buck Spring, Knoll Lake (which included the areas around the dam), Lost Lake, and Dude Lake. Several other locations were surveyed in East Clear Creek. These locations were re-surveyed in 1993, along with other locations in Merritt Draw, Dick Hart Draw, and Dane Canyon. Knoll Lake, the Blue Ridge Reservoir spillway, Potato Lake, and Poverty Draw were surveyed again in 1995. No Chiricahua leopard frogs were located. In addition to these specific surveys, fish crews surveyed many of the streams in the East Clear Creek Watershed between 1998 and 2001. Crews were trained to identify sensitive reptiles and amphibians, and instructed to look for these species during fish and fish-habitat surveys. No ranid frogs were observed during such surveys. The nearest intact population of Chiricahua leopard frogs is located in the Mud Tanks area, over 20 miles from the project area.

An October 5, 2001, fish survey was conducted within the 1,010 feet of watered channel below the Knoll Lake Dam. This survey excluded the 200 feet of ditch water leading from the outlet works to the confluence with the spillway channel, from four of the five runs within the 1,010-foot channel. Visual surveys for frogs were made at the same time. No frogs were observed. An additional survey will be conducted in the spring of 2002 during the breeding season, to ensure that frogs are not in the project area. If Chiricahua leopard frogs are found during those surveys, the project will be postponed until further conferencing occurs.

We concur with the Forest Service's determination that the proposed action may affect, but will not likely adversely affect, the Chiricahua leopard frog. We base this determination on the following:

1. The proposed project area likely does not have the species present. Surveys for Chiricahua leopard frogs will be conducted prior to project implementation, during the 2002 breeding season. If Chiricahua leopard frogs are found, the Forest Service will reinitiate conferencing.